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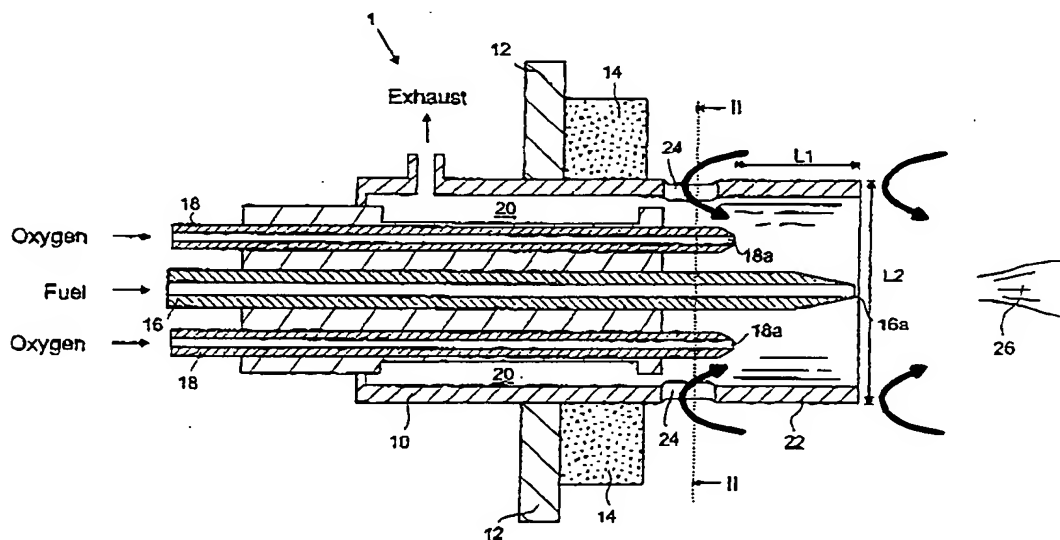
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(54) Title: METHOD AND APPARATUS FOR HEAT TREATMENT



(57) **Abstract:** A method and an apparatus for heat-treatment of materials, preferably metals, are provided. The method comprises the following steps: providing and maintaining a flame by supplying a burner with fuel and gas containing at least 80 percent by volume oxygen; creating an oxygen-hot exhaust mixture by recirculating exhausts from the flame to the gas containing oxygen by means of an ejector effect; mixing the oxygen-exhaust mixture and the fuel; and providing a secondary recirculation by recirculating exhausts from the flame to the oxygen-exhaust-fuel mixture. The method and apparatus allow for extremely low NO_x emissions and high efficiency, resulting in an environmentally friendly and at the same time cost effective process.